

PolymerPlace Notes

A plastics technology newsletter
By Margaret Baumann, G.H. Associates

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What's happening at PolymerPlace

The Fall of 2004 will be a busy one.

- Plastics USA is scheduled for September 28-30,
- The Commercial Development and Marketing Association (CDMA) Fall meeting is scheduled September 29-October 1 in Chicago and
- The "K" Show will be held October 20-27 in Duesseldorf Germany.

We plan to attend all three events. Maggie Baumann of G.H. Associates will be participating in the conference part of the program organized by SPE as part of Plastics USA. She will be speaking on the trends in the industry reflected through NPEs (National Plastics Expositions) over the years and share some insights as to what we can expect in the future. Her presentation will be in the New Technology Portion of the "free" conference program. The paper is entitled "*The History of the Plastics Industry and Trends for the Future*".

If you plan to attend Plastics USA please attend the conference. Ms. Baumann's presentation will be part of the New Technology session.

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Also at Plastics USA, The CDMA and Marketing and Management Division of SPE are offering a course called "[Cyber Competitive Intelligence and the](#)

Plastics Industry”. This workshop will be offered on **September 28th** as part of the Plastics USA seminar offering. It is the first in the series of marketing and management courses that the Marketing and Management division of the SPE will be developing with CDMA with specific course content for the Plastics and Allied industries. The benefit of attending the course at Plastics USA is that you get to put it to practice while you are the show. The price of the seminar is \$495.00 and includes lunch. We hope to see you there!

There will be a course offered at GPEC 2005 (Global Plastics Environmental Conference) on competitive intelligence (February 23, 2005 in Atlanta, GA) and a course in Commercial Development or Market Research is planned for ANTEC 2005 in Boston. For more information or to register contact Maggie Baumann at 908-832-2207 or visit <http://www.4spe.org>. For more information on the CDMA please visit <http://www.cdmaonline.org>.

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G.H. Associates and Franklin Management International will be attending the “K” Show in Duesseldorf, Germany October 20-27, 2004. The “K” Show is a triannual event and is a global plastics trade show. If you are unable to attend but would like us to **track a technology at the “K” show** for you please contact us at 908-832-2207 or 1-800-207-Poly. We would be happy to write a report on what was being displayed at the show in your area of interest. Our collective experience in the Plastics Industry spans 40 years.

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Where is the Plastics Industry Going?

By Roger F. Jones, Franklin Management International

I have recently begun reading a very interesting new book titled “*The Chemical Industry at the Millennium: Maturity, Restructuring, and Globalization.*” The editor is Peter Spitz, founder of Chem Systems, a well know consulting firm that was eventually acquired by IBM. In the first chapter (written by Spitz), he states boldly that two of the four principal sectors of the chemical industry, basic chemicals and specialty chemicals, are now largely mature businesses. They demonstrate cyclical growth and contraction, their return on capital is at the bottom of the pile, there is little difference between the plant efficiencies of the corporate leaders and laggards, and a lack of technological innovation has pervaded these sectors for more than ten years. The other two industry categories, life sciences and consumer products, have not yet reached these depths but of the two, only life sciences is deemed to hold genuine potential for major growth. I am only into the second chapter, but I am not sure I fully agree with Spitz’s somewhat facile categorizations and forecasts, primarily because he omitted any analysis of what is happening in China and India.

Nevertheless, it is troubling to note that he and other authors categorize *polymers* as a subsector of petrochemicals, which, in turn, are considered to be part of basic chemicals. Indeed, the commoditized parts of polyolefins,

polystyrene, PET, and PVC, have become mired in increasingly painful boom-and-bust cycles. As Volker Trautz, chairman of Basell has said, the struggle to hold market share in polypropylene during “down” years has effectively wiped out all of the earnings ever made during “up” years. I disagree that this is a result of chemical company fundamentals, however. As I state in my book, *Strategic Management for the Plastics Industry*, this boom-and-bust mentality is closely attributable to the traditional philosophy of (polyolefin-producing) oil companies during economic downturns, to “keep-the-plants-running-no-matter-what,” because, under their accounting standards, earnings are made when oil is pumped out of the ground – further downstream processing and refined product sales are treated not so much profit centers as cost centers. This has some merit when fluctuations in demand are reasonably small, but less so when the wider swings of the economy, such as automobile manufacturing, is involved. Now that oil companies such as Atofina and BP are divesting their petrochemical businesses, perhaps a different and more flexible management philosophy will come into play in at least a few polymer producers. It is worth noting that the so-called mature commodity polymers are currently enjoying a substantial growth in exports – largely to China – despite their high prices, even pushing capacity limits.

Engineering and performance polymers are clearly in a different category than “commodity,” although they are not immune to economic cycles. Their “up” cycles tend to be significantly higher than their “down” cycles are low, keeping a smoothed growth rate curve appreciably ahead of GDP rates. Under Spitz’s thesis, these should be part of the “mature specialty chemicals” sector, but they clearly do not yet fit neatly into the puzzle.

Despite the gloomy prognostications, plastics – fabricated polymers – are participating fully in the current economic recovery. Perhaps this is because they are closer to the end users – consumers – and hence part of the chemical industry that still has its best days ahead. Processors take heart!

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G.H.Associates and Larry Drumm of BioLarry Consulting have launched a **Biotech Newsletter**. The next issue is currently being revised and should be ready in a week. The Newsletter is a bi-monthly and is available for \$49.00 per year. If you are interested in seeing the inaugural issue, go to: <http://www.polymerplace.com>; if you would like to receive the next issue or subscribe please e-mail us at biotech@polymerplace.com

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It's easy to be overwhelmed by the loads of information and thousands of exhibitors at K'2004. We recently read that Omnexus has made it easier for you to optimize your time, highlighting what's new, what's innovative, and where to find it at K'.

Please go to the Innovations at the "K" Guide.

>>> <http://www.omnexus.com/resources/k2004?lr=nomn4268&li=9421>

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POLYMER MARKETS

Automotive

BASF has introduced **a new, one-piece plastic seating structure** that is quickly gaining commercial acceptance in the U.S. automotive industry.

Typical metal-based automotive seating structures are comprised of individual parts that require hand assembly. The BASF plastic seating structure consolidates these parts into one component. For example, in one application, replacing a metal-based seating structure with BASF's plastic alternative resulted in 15 fewer parts and 10 less assembly steps.

In addition to the benefits of convenience and production efficiency, BASF's plastic automotive seating structure weighs at least 50 percent less than metal, depending on the component design and platform, enabling material cost savings without compromising performance. Also, the bumps, squeaks and rattles that occur in multiple-component seating structures due to localized fatigue are eliminated in this single-piece design.

BASF's automotive seating structure uses Ultramid® nylon, Petra® thermoplastic polyester ([PET](#)) and Nypel® [polyamide](#) nylon for seat cushion pans and back frames, seat track adjusters and transmissions, lumbar handles and supports, and recliner handles. The structure has commercial applications in domestically produced vehicles.

"The BASF plastic seating structure enables the automotive industry to consolidate parts and even add additional features, which reduces overall system costs. Mark Minnichelli, Director of Commercial Technology for BASF's Engineering Plastics business in North America stated that. "These savings multiply throughout the value chain because having fewer parts cuts down assembly time and simplifies inventory management."

"In addition, various functional and assembly features that may be impractical or impossible for stamped steel pans could easily be designed into a plastic seat pan," Minnichelli said. "For example, occupant comfort features such as contouring to minimize pressure points and integrated heating and cooling ducts can be incorporated into an injection-molded Ultramid nylon design with assistance from BASF's Application Development team."

Minnichelli added that plastics eliminate several secondary operations that metals usually require, such as welding and finishing, as well as painting and coating since the material is not prone to corrosion and produces a finished part with an excellent surface appearance. Plastic parts are also better for assemblers to handle and promote worker safety, he said, because they don't have sharp edges to contend with and weigh less.

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A small, inconspicuous piece of plastic, no longer than 10 cm and 4 cm in diameter, is contributing to the **crash safety of motor vehicles**. This plastic component, which is molded from Ultramid® B3ZG6, a toughened nylon 6 from BASF, belongs to the inflator unit of a new side airbag system developed by TRW Automotive Corp. The new airbag, which deploys at head height and cushions the front and rear passengers during a side impact, is already being fitted to the new BMW X3 and is due to be introduced into other vehicles shortly. Because of the explosive pressures involved when the bag inflates, the functional parts of airbag modules are often still made of metal. However, there are now plastics capable of withstanding—even at low temperatures—the high stresses due to the sudden pressure increase¹ during airbag deployment. The new Ultramid part weighs much less than its metal predecessor and allows other functions (e.g., the fixing bracket) to be integrated. The increase in pressure can be as high 200 bar per 2 milliseconds

Sources: BASF and Omnexus

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PROCESS DEVELOPMENTS- THERMOFORMING OF TPES

PBM Plastics of Newport News Virginia has succeeded in forming Riteflex® thermoplastic polyester elastomer (TPE) made by Ticona, the technical polymers business of Celanese AG, to create **deep-draw liners and containers** having width-to-depth ratios as great as 1:4 and walls as thin as 0.002 in. PBM accomplished this with its patented Melt-Phase Forming Process, which allows for deeper drawing and thinner walls than conventional thermoformers can achieve.

In the trial, PBM drew Riteflex® TPE sheet into liners having widths and depths of 1 x 4 in., 4 x 2 in. and 4 x 4 in. The liners were created from 6-in.-wide billets cut from sheets having thicknesses of 0.04 and 0.06 inches.

“I believe this is the first time a copolyester elastomer has been drawn as deeply as 1:4,” says PBM President Adam Burke. “Our goal in this is to extend the use of Riteflex® TPE beyond that possible with traditional thermoforming to gain hydrocarbon barrier properties, flexibility and durability in seamless liners and bladders that have thicknesses of 0.0005 to 0.008 in. and dimensional ratios of at least 1:6.”

“Such liners would find ready application in the auto, medical, food, beverage and other sectors. For instance, thin and deep Riteflex® TPE forms would make excellent bladders that collapse as paints, sealants, adhesives and other hard-to-dispense industrial liquids are removed. As an aid in designing for such applications, engineers can use the interactive e-designer on our website to create a custom liner or container to fit their needs.” when reheated or retorted. In addition to thin, strong, and highly uniform liners, the process also creates precision flanges that allow for airtight and watertight seals.”

Riteflex® copolyester elastomers generate soft and resilient liners that combine excellent toughness and tear/flex-fatigue resistance at temperatures from -40° to 121°C. They resist a wide range of substances, including common solvents, oils, greases and dilute acids and bases, and comply with US FDA

regulations for food contact, U.S. Pharmacopeia Class VI and other medical and food-related standards.

For information on Riteflex[®] polyester elastomer, contact: Ticona, 90 Morris Avenue, Summit, New Jersey, 07901, USA. Phone: 1-800-833-4882 or 1-908-522-7500. Email: prodinfo@ticona.com . Or visit <http://www.ticona.com> .

For information about PBM Plastics and its Melt-Phase Forming Process, contact: PBM Plastics, 240 Enterprise Drive, Newport News, Virginia, 23603, USA. Phone: 1-800-526-6706 x280. E-mail: info@pbmplastics.com . Or visit <http://www.pbmplastics.com> .

References: The stories in *PolymerPlace Notes* come from a variety of sources including Company Press Releases, Interviews, and trade publications, e.g. *Plastics News* and newswires.

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<http://www.Polymerplace.com>

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